

Find two solutions of the equation. Give answers in degrees ($0^\circ \leq \theta < 360^\circ$) and radians ($0 \leq \theta < 2\pi$).

1. $\sin\theta = \frac{1}{2}$ 2. $\cos\theta = \frac{\sqrt{2}}{2}$ 3. $\csc\theta = -\sqrt{2}$ 4. $\cot\theta = -\sqrt{3}$ 5. $\sec\theta = \sqrt{2}$

Find the exact value of each expression. Do not use a calculator.

6. $\tan \frac{3\pi}{2}$ 7. $\cos \frac{5\pi}{3}$ 8. $\sin \frac{3\pi}{4}$ 9. $\sec \frac{\pi}{6}$ 10. $\csc \frac{7\pi}{6}$

11. $\cos\theta = -\frac{2}{3}$ and $\tan\theta > 0$, $\sin\theta =$ _____ and $\tan\theta =$ _____

12. $\sec\theta = \frac{8}{3}$ and $\csc\theta < 0$, $\tan\theta =$ _____ and $\sin\theta =$ _____

Graph the following. Label the axes. Provide the amplitude, period, phase shift, and vertical shift in the space provided. If any of these do not exist, write *none*. Show at least one positive and negative period.

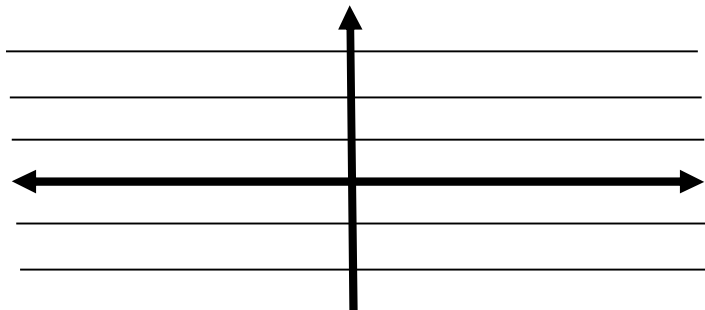
13. $y = 5 \sin 4x$

Amp. = _____

Period = _____

P. S. = _____

V.S. = _____



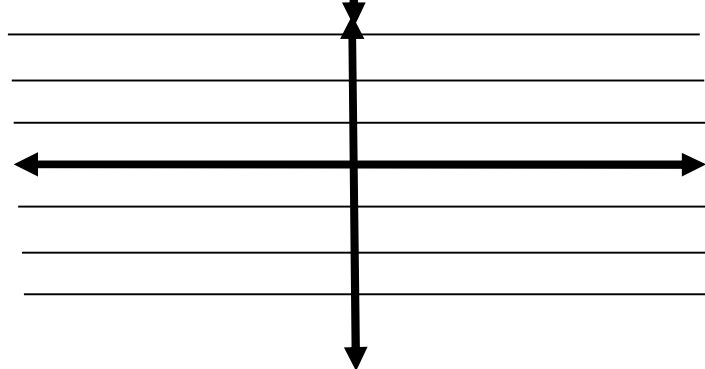
14. $y = 4 \cos 6x$

Amp. = _____

Period = _____

P. S. = _____

V. S. = _____



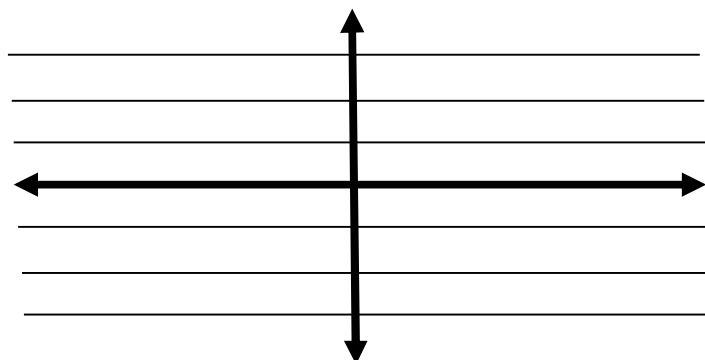
15. $y = 3\sin(3x - \pi)$

Amp. = _____

Period = _____

P. S. = _____

V. S. = _____



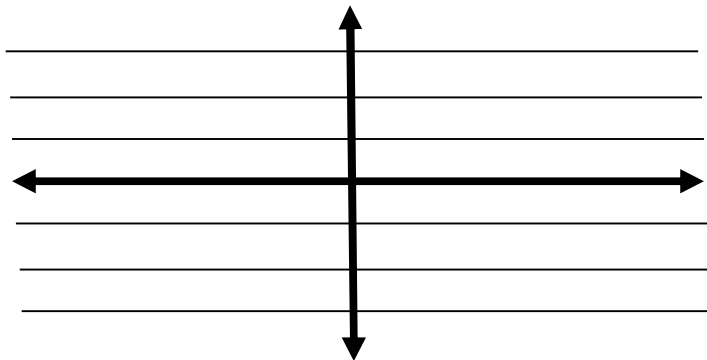
16. $y = 2\cos(3x + \frac{\pi}{2})$

Amp.= _____

Period = _____

P. S. = _____

V. S. = _____



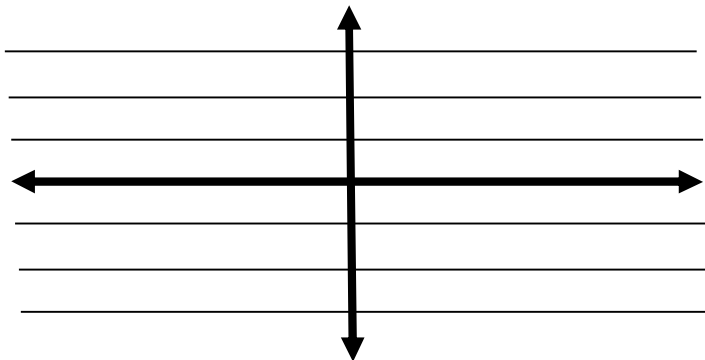
17. $y = \frac{1}{2} \cos x + 2$

Amp.= _____

Period = _____

P. S. = _____

V. S. = _____



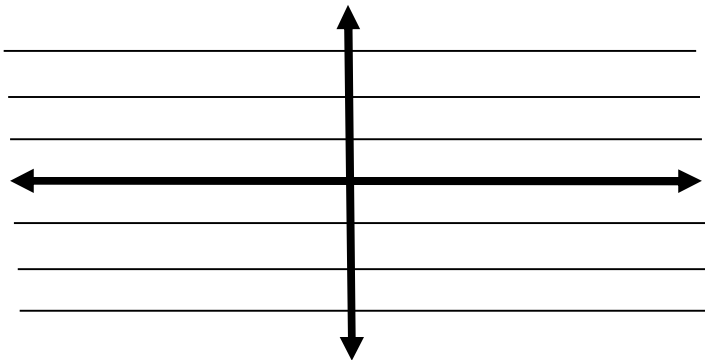
18. $y = -2\sin(2x + \pi) + 1$

Amp.= _____

Period = _____

P. S. = _____

V. S. = _____



Write the equation of a sine function that has the given characteristics.

19. amp: 3
Period: π

20. Amp: 4
period: 1

21. Amp: 2
period: π
Phase shift: - 2

Write the equation of a cosine function that has the given characteristics.

22. amp: 2
Period: $\frac{\pi}{6}$

23. Amp: 3
phase shift: 4
Reflect over the x-axis

24. Amp: $\frac{1}{2}$
period: 6π
vertical shift: up 4